Source Water Assessment Program (SWAP) Report for Clarksburg Elementary School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
September 24, 2001

Table 1: Public Water System (PWS) Information

PWS Name	**Clarksburg Elementary School**
PWS Address	**777 West Cross Road**
City/Town	**Clarksburg, Massachusetts**
PWS ID Number	**1063008**
Local Contact	**Dr. John D. Barry, Superintendent**
Phone Number	**413-664-9292**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well 1	1063008-01G	140	442	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Clarksburg Elementary School is an elementary school with a total staff and student population of approximately 250 people. It is located in a rural, residential setting immediately on the southeast side of Cross Road approximately one-half mile north of Houghtonville, a village within Clarksburg. Well 1 is the sole source of water for the school and is immediately north of (within five feet) the school wall. The Zone I protective radius for Well 1 is 131 feet and the Interim Wellhead Protection Area (IWPA) radius is 436 feet. The protective radii were based on metered usage for the two highest months on record. Please refer to the attached map that shows the Zone I and IWPA. The Zone I is the area immediately around the wellhead while the IWPA is a larger area that likely contributes water to the wellhead. The IWPA is only an interim protection area; the actual area of contribution to the wellhead may be larger or smaller.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

Well 1, a 6-inch diameter well, is reportedly drilled to a depth of approximately 400 feet. The well is located in a 5-foot deep pit, with a locking bulkhead cover that has been bermed to prevent parking lot runoff from entering the pit. There is no record of final construction of the well or of the materials encountered during drilling. The Geologic Map of the North Adams Quadrangle shows three bedrock contacts on the school property parcel. An inferred contact between the Kitchen Brook Dolomite and the Cheshire Quartzite is in the immediate vicinity of the well while an inferred contact with the Dalton Formation (a quartzite, schist conglomerate) is mapped north of the school near the road. The bedrock geology is complex series of folded and faulted bedrock with beds dipping to the east at the school. There is no information regarding the depth to bedrock at the school well. Bedrock wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock aquifer.

The Clarksburg Elementary School well water does not require and does not have treatment at this time. For current information on monitoring results, please refer questions to the water supply contact listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

Numerous land uses and activities within the drinking water supply protection areas are potential sources of contamination.

Key issues include:

1. **Non-conforming Activities in Zone I**
2. **Storage room in IWPA**
3. **Aboveground Fuel Oil Storage in IWPA**
4. **Floor drain in boiler room**
5. **Septic components in Zone I and IWPA**

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of several moderately ranked land uses or activities in the Zone I and IWPA, as seen in Table 2.

1. Non-conforming activities in Zone I – Currently, the well does not meet DEP's restrictions that allow only water supply related activities in Zone I. The facility's Zone I contains school buildings, a library, the septic tank, and parking areas. The public water

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Sources of Contamination*	Zone I	IWPA	Threat	Comments
School Structures	Yes	Yes	--	Continue policy of no fertilizer or pesticide usage
Aboveground Fuel Storage (AST)	No	Yes	Moderate	Aboveground heating oil in containment
Storage room	No	Yes	Moderate	Storage room with old science waste
Parking lot & roads	Yes	Yes	Moderate	Limit road salt usage, monitor for leaks and spills
Septic system components	Yes	Yes	Moderate	Recommend connecting to sanitary sewer
Low density residential w/sewer	No	Yes	Moderate	Pesticide brochures in the attachments
Floor drain	Yes	No	Moderate	Boiler room

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/. ** See Appendix A**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

supplier owns all but a very small portion of land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use, conducting any additional activities in Zone I or modifying systems.

Recommendations:

- ✓ Do not conduct any new activities within Zone I.
- ✓ Do not use or store pesticides, fertilizers or deicing materials within the Zone I.
- ✓ If the existing threats cannot be mitigated, and pose increased threat, consider investigating an alternative site for a new well.
- ✓ Raise the wellhead above grade to prevent flooding and provide protection to the wellhead.
- ✓ Post signs and inspect the parking area for leaks and accidental spills. Prepare an emergency response plan to address accidents.

2. Storage room in IWPA – The storage shed located in the rear of the school, at the time of the visit contained various science classroom supplies. The bulk of the materials were reagents and indicators, which pose minimal hazard. However, there were some items such as acids, turpentine and denatured alcohol. The Superintendent noted that the bulk of the materials have been removed and properly disposed of. The remainder is scheduled for disposal in the near future. The District is commended for taking action to protect the supply and the DEP recommends that following to support that effort.

Recommendations:

- ✓ Although generally there is little use of hazardous materials in an elementary school, periodically during cleaning or maintenance, household hazardous waste is generated. Review the attached documents "A Summary of Requirements for Small Quantity Generators of Hazardous Waste" and a fact sheet for Very Small Quantity Generators to determine your status and regulatory requirements.
- ✓ Contact Hilary Eustace of the Massachusetts Office of Technical Assistance at 617-626-1061 or Hilary.Eustace@state.ma.us regarding proper hazardous material use, storage, disposal, emergency response, and best management practices. Develop a procedure for storage and disposal of any household type hazardous materials either through the Town's hazardous waste collection days or through other appropriate means. Develop a simple plan to ensure participation of all appropriate staff. Include all of the school staff such as teachers, custodial, groundskeepers, certified operator, and food preparation staff in the training.

3. Aboveground Fuel Oil Storage Tank (UST) – The fuel oil is stored in 4 above ground, 330-gallon storage tanks. The tanks are located within adequate cement containment, in a secured shed approximately 195 feet from the well. ASTs are more protective than underground storage but still pose some concern in close proximity to the well. An AST in the IWPA containing petroleum products is a concern due to the potential threat posed by a release of large quantities of fuel near the well. The containment structure provides a significant margin of protection from accidental release.

Recommendations:

- ✓ Closely monitor activities associated with the fuel tank refilling and usage.
- ✓ Any further modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.

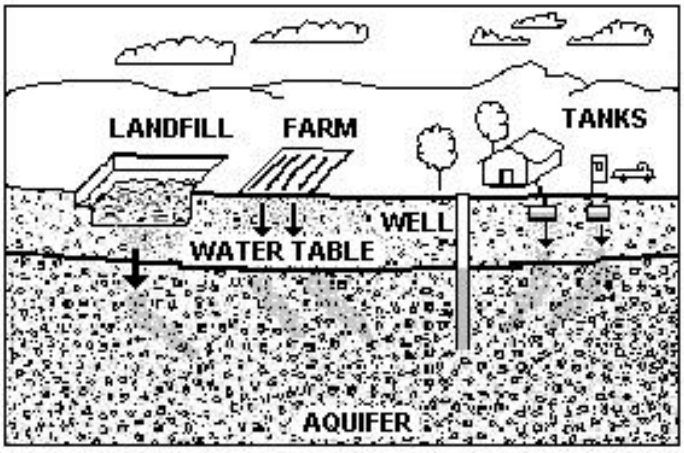

Figure 1: Example of how a well could become contaminated by different land uses and activities.

4. Floor Drain - The floor drain in the boiler room is required to protect the school from accidental plumbing failure. However, the floor drain discharges to the septic

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

system; Title 5 prohibits disposal of any wastewater other than sanitary waste to a septic system. The floor drain must be protected to prevent boiler blow down or other prohibited discharges through the floor drain. There are no hazardous materials stored in the boiler room and an outside contractor maintains the boiler.

Recommendations:

- ✓ Oil lines from the tank to the boiler can be sleeved so that any leaks would drain back to the tank or minimal oil would leak to the boiler room. A policy and plan should be in place during maintenance operations, especially when oil filters are changed. We recommend that you require your boiler maintenance contractor to use containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance. The contractor should be responsible for the off-site disposal of any boiler blow down generated during maintenance.
- ✓ If protection measures are not taken, an alternative is to install a tight tank and connect the boiler room floor drains to the tank.
- ✓ Another alternative is to request to connect to the sanitary sewer that runs along the street. An oil water separator may be required.

5. Septic system components in the Zone I and IWPA – The septic system piping and tank are in the Zone I and the school's two leach fields are in the IWPA. An IWPA is considered a nitrogen sensitive area in the Title 5 regulations, which may in some instances result in additional treatment requirements. It is our current understanding that the school is moving forward with plans to connect to the municipal sewer.

- ✓ The Department strongly recommends constructing an external to the building, DEP standard design kitchen grease trap and connecting all wastewater discharges to the North Adams sanitary sewer system. Both the Department and the EPA, in letters to the Clarksburg Town Administrator dated May 23, 2001 and June 18, 2001, have endorsed this action to protect the water supply at the school and public health and safety.
- ✓ Septic system components should be inspected and maintained on a regular basis until such time that the system is connected to the sewer. Refer to the Appendices for more information regarding septic system

Other activities noted during the assessments were parking, roadways and storm water runoff. Storm water runoff ultimately either discharges into the ground or to nearby surface water bodies. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents. Minimize parking in the Zone I, post drinking water signs and monitor the area for leaks and accidental spills. Residential homes surround the school. Residential homes pose minimal threat to public and private water supplies provided home owners use Best Management Practices with respect to septic system maintenance and disposal practices, household hazardous waste, auto care and lawn and pest control. Work with your community to continue providing information regarding the use of Best Management Practices. The DEP can provide your community with information on how to develop public outreach and support local protection measures.

Finally, the Clarksburg Highway Department Garage is located approximately 600 feet northeast of the well. Although the facility is not within the IWPA of the well, the close proximity warrants that the Town ensures BMPs are employed for activities involving hazardous materials storage, use and disposal. The facility is currently not registered as a Hazardous Waste Generator. A copy of the requirements for registration will be sent to the Clarksburg Board of Selectmen. In addition, although the floor drains in the facility were sealed, there is no indication that an investigation of the discharge point of the floor drains was conducted as part of the closure, as is required. State plumbing code requires adequate drainage capacity in facilities. It is our understanding from the Highway Superintendent that a tight tank is proposed to comply with that code and an investigation of the discharge area will be conducted. The Department strongly recommends the investigation be conducted as soon as is feasible.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The staff of the Clarksburg Elementary School is commended for current protection measures. The Clarksburg Elementary School in conjunction with the district and local officials should review and adopt the key recommendations above and the following:

Priority Recommendation:

- ✓ Connect to the municipal sewer system.

Zone I and IWPA:

- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Monitor all non-compliant activities in the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by locking facilities and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check area for accidental spills and leaks, etc.
- ✓ Maintain road and parking lot drainage and catch basins.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Register as a VSQG and properly dispose of all potentially hazardous materials stockpiled in the storage facility
- ✓ Investigate and consider requesting a connection to the municipal sewer system.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous materials.
- ✓ Incorporate groundwater education into school curriculum (K-6 curricula available; contact DEP for copies or other references).
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Prohibit non-sanitary wastewater discharges to on-site septic systems. Post signs near sinks as appropriate.
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Generally there is little use of hazardous materials in an elementary school. However, periodically during cleaning or maintenance, household hazardous waste is generated. Contact Hilary Eustace of the Massachusetts Office of Technical Assistance at 617-626-1061 or Hilary.Eustace@state.ma.us regarding proper hazardous material use, storage, disposal, emergency response, and best management practices. Develop a procedure for storage and disposal of any hazardous materials either through the Town's hazardous waste collection days or through other appropriate means. Make the process simple to ensure participation of all appropriate custodial staff. The school will have to register as a Very Small Generator of Hazardous Waste to dispose of small quantities of hazardous materials. Include custodial staff, groundskeepers, certified operator, and food preparation staff in the training.
- ✓ Implement Best Management Practices (BMPs) for the use of pesticides on facility property.
- ✓ Septic system components should be inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Concrete wellhead protective pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers, including pole mounted transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Contact the utility if the area near the transformer has tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Clarksburg to encourage the development of and implementation of Aquifer Protection Bylaws that would include public water supply protection areas, including the school well's IWPA. The Department can assist your community in developing wellhead protection bylaws.
- ✓ Review and update as appropriate, your plan to address short-term water shortages and long-term water demands. Keep

the phone number of a bottled water company readily available.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers address Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Wellhead Protection Grant or the Source Water Protection Technical Assistance/Land Management Grant Program. For additional information, please refer to the attached program fact sheet. Please note that each program year, the Department posts a new Request for Response (RFR – grant application form) for the Grant programs on the internet on or about May 1 and the response is due on or about June 30. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

3. Attachments

- A Summary of Requirements for Small Quantity Generators of Hazardous Waste
- Fact sheet for Very Small Quantity Generators
- Preparing a Wellhead Protection Plan
- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact sheet
- Your Septic System Brochure
- Pesticide Use Fact sheet
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form